



CLIMATE CHANGE AND NEW CHALLENGES IN THE PRODUCTION OF HIGH QUALITY AND WELL ADAPTED FOREST REPRODUCTIVE MATERIAL

60th anniversary of Forest Seed Science and Technology in Croatia

Jastrebarsko, 3 - 4 December 2019



SECOND CALL

Scientific-expert Conference with International Participation

CLIMATE CHANGE AND NEW CHALLENGES IN THE PRODUCTION OF HIGH QUALITY AND WELL ADAPTED FOREST REPRODUCTIVE MATERIAL

60th Anniversary of Forest Seed Science and Technology in Croatia

„All the flowers of all the tomorrows are in the seeds of today“
(Chinese proverb)

3rd – 4th December 2019

ORGANISER

Croatian Forest Research Institute

CO-ORGANISERS

Faculty of Forestry University of Zagreb
Academy of Forestry Sciences
Croatian Forests Ltd Zagreb
Croatian Chamber of Forestry and Wood Technology Engineers
Croatian Forestry Society

PATRONS

The President of the Republic of Croatia
Ministry of Science and Education of the Republic of Croatia
Ministry of Agriculture of the Republic of Croatia
Croatian Accreditation Agency
European Forest Institute (EFI)
International Union of Forest Research Organization (IUFRO), Divisions 1, 2

DONATIONS

Grad Zagreb
Grad Jastrebarsko
Vode Jastrebarsko, d.o.o.
Sunčane šume d.o.o.
Zagrebačka županija

CONFERENCE AIMS

The aims is to present the up to date achievements and approaches, techniques, methods and legislation related to the forest seed science and technology, gene resource conservation and conservation of biodiversity of forest ecosystems.

CONFERENCE TOPICS

Section A

- ✓ The impact of climate change on forest ecosystems and management practices
- ✓ The high quality forest reproductive material as a significant factor of forest regeneration

Section B

- ✓ Biodiversity and conservation of forest genetic resources
 - ✓ Biotechnology in forestry sector

Section C

- ✓ Production, collection, processing, storage and use of forest reproductive material
 - ✓ Seed health
- ✓ Seed physiology – development and maturation, dormancy and germination

Section D

- ✓ Forest legislation and policy
- ✓ Competence of testing and calibration laboratories according to HRN EN ISO/IEC 17025 standard

CONFERENCE PROGRAMME

Tuesday, December 3rd 2019, Jastrebarsko

Opening Ceremony

8:00 *Registration of Participants*

9:00 *Welcome Speeches*

Opening of the Conference – Sanja Perić, Director of Croatian Forest Research Institute

Plenary Session

I. part

Moderators: S. Perić, M. Ivanković, M. Gradečki-Poštenjak

10:00 **Karmelo Poštenjak, Marija Gradečki-Poštenjak:** 60 GODINA ZAVODA ZA KONTROLU ŠUMSKOG SJEMENA NA SUŠAKU

10:20 **Marija Gradečki-Poštenjak:** VAŽNOST KVALITETNOG SJEMENA ZA OČUVANJE GENOFONDA I OBNOVU ŠUMA

10:40 **Santiago C. González-Martínez:** UNDERSTANDING THE GENETICS OF *Pinus pinea* L., ITS EVOLUTIONARY HISTORY AND WHAT IT MEANS IN THE PRESENT AND FUTURE

11:00 **Heinz Rennenberg:** CO-CULTIVATION WITH WHITE FIR (*Abies alba* Mill.) IMPROVES WATER RELATIONS OF EUROPEAN BEECH (*Fagus sylvatica* L.) IN A CHANGING CLIMATE

11:20 - 11:50 **Postavljanje postera/Poster presentations/Coffee Break/Pauza za kavu**

Plenary Session

II. part

Moderators: N. Čelepirović, D. Kajba

11:50 **Mirko Liesebach:** IS THE PRESENT DELINEATION OF REGIONS OF PROVENANCE STILL APPROPRIATE UNDER CLIMATE CHANGE?

12:10 **Czesław Kozioł:** GENETIC DIVERSITY OF THE WILD SERVICE TREE (*Sorbus tominalis* L.) IN POLAND AND CONSERVATION OF ITS GENETIC RESOURCES

12:30 **Aikaterini Dounavi:** BIOTECHNOLOGY IN FORESTRY SECTOR

12:50 *promjena dvorane, rad u sekcijama/changing the confrence room, presentations by sections*

Section A

13:00 **Ivan Pilaš, Sanja Perić, Jasnica Medak, Martina Đodan, Robert Licht:** PRAĆENJE UČINKA KLIMATSKIH PROMJENA I URODA ŠUMSKOG SJEMENA HRASTA LUŽNJAKA NA PODRUČJU

SLAVONIJE, BARANJE I SRIJEMA KORIŠTENJEM MODIS SATELITSKIH OPAŽANJA I TERENSKIH INFORMACIJA

- 13:10 **Miran Lanščak, Saša Bogdan, Vladimir Novotny, Maša Nedanova, Anđelina Gavranović, Mladen Ivanković:** KONVERZIJA MLADIH GOSPODARSKIH SASTOJINA HRASTA LUŽNJAKA (*Quercus robur* L.) U SJEMENSKE SASTOJINE
- 13:20 **Branislav Cvjetković, Milan Mataruga, Vanja Daničić, Mirjana Šijačić-Nikolić:** DINAMIKA OTVARANJA PUPOLJAKA SMREKE (*Picea abies* Karst.) U TESTOVIMA POTOMSTVA U BOSNI I HERCEGOVINI
- 13:30 **Mirzeta Memišević Hodžić, Dalibor Ballian:** KVALITETA PROVENIJENCIJA HRASTA LUŽNJAKA NA TEMELJU KUTA GRANANJA I OBLIKA STABLIKE
- 13:40 **Martina Đodan, Jasnica Medak, Ivan Pilaš, Sanja Perić:** NOVI ŠUMSKOUZGOJNI IZAZOVI U REPUBLICI HRVATSKOJ – PROIZVODNJA ŠUMSKIH SADNICA KAO TEMELJ ADAPTACIJSKOG GOSPODARENJA

Lunch (13:50-15:00)

Section B

Moderators: S. Bogdan, I. Balenović

- 15:00 **Josef Frýdl, Petr Novotný, Jaroslav Dostál, Martin Fulín, Jiří Čáp:** CZECH REPUBLIC - RECOVERY AND PRESERVATION OF SPECIFIC FORMS OF ORE MOUNTAINS NORWAY SPRUCE
- 15:10 **Nevenka Čelepurović, Marija Gradečki-Poštenjak, Sanja Novak Agbaba, Sanja Bogunović, Miran Lanščak, Anđelina Gavranović, Ivica Čehulić, Saša Bogdan, Florian Netzer, Aikaterini Dounavi, Heinz Rennenberg, Mladen Ivanković:** REZULTATI PROJEKTA "OČUVANJE GENETSKIH RESURSA ŠUMSKOG DRVEĆA U SVJETLU KLIMATSKIH PROMJENA"
- 15:20 **Saša Bogdan, Ida Katičić Bogdan, Martina Tamunović:** SPAŠAVANJE POLJSKOG JASENA – PERSPEKTIVA GENETIČARA
- 15:30 **Damir Drvodelić, Luka Prša, Mario Šango, Stjepan Mikac, Milan Oršanić:** UTJECAJ STAROSTI STABLA I OKOLIŠNIH ČIMBENIKA NA UNUTARPOPULACIJSKU VARIJABILNOST U RASADNIČKOJ KLIJAVOSTI SJEMENA OSKORUŠE (*Sorbus domestica* L.) I MORFOLOŠKE ZNAČAJKE SADNICA GOLOGA KORIJENA 1+0
- 15:40 **Martina Deur, Mateo Gašparović, Ivan Balenović:** AUTOMATSKA KLASIFIKACIJA ŠUMSKIH SASTOJINA TEMELJEM SATELITSKIH SNIMAKA VISOKE REZOLUCIJE
- 15:50 **Marjana Westergren, Gregor Božič, Marko Bajc, Nataša Šibanc, Barbara Štupar, Hojka Kraigher:** USE OF MOLECULAR TOOLS IN TESTING THE ORIGIN OF COMMERCIALY COLLECTED SEEDLOTS OF EUROPEAN BEECH
- 16:00 **Sanja Bogunović, Saša Bogdan, Željko Škvorc, Heinz Rennenberg, Stefan Seegmueller, Mladen Ivanković:** PRELIMINARNI REZULTATI ISTRAŽIVANJA VARIJABILNOSTI HRVATSKIH I NJEMAČKIH PROVENIJENCIJA HRASTA KITNJAKA (*Quercus petraea* (Matt.) Liebl.)
- 16:10 **Katharina Lapin, Georg Kindermann, Martin Braun, Peter Schwarzbauer, Theo Koller, Franziska Hesser, Christoph Dobeš, Silvio Schueler:** SPATIAL AND TEMPORAL CHANGES IN MAST SEEDING OF STAND-FORMING TEMPERATE TREE SPECIES IN AUSTRIA

Section C

I. part

Moderators: K. Sever, J. Medak

- 13:00 **Damir Drvodelić, Jelena Kranjec-Orlović, Danko Diminić, Milan Oršanić, Marko Vukelić, Matea Rukavina:** UTJECAJ TERMOTERAPIJE NA PRISUTNOST GLJIVA I RASADNIČKU KLIJAVOST ŽIRA HRASTA LUŽNJAKA (*Quercus robur* L.) TE MORFOLOŠKE ZNAČAJKE SADNICA GOLOG KORIJENA (1+0)
- 13:10 **Damir Drvodelić, Milan Oršanić, Igor Poljak, Mario Šango, Sebastian Hodalj:** UTJECAJ PREDSJETVENE PRIPREME SJEMENA POLJSKOG JASENA (*Fraxinus angustifolia* Vahl) RAZLIČITOG PODRIJETLA NA NJEGOVU RASADNIČKU KLIJAVOST
- 13:20 **Krunoslav Sever, Saša Bogdan, Željko Škvorc, Daniel Krstonošić i Jozo Franjić:** UTJECAJ ISHRANJENOSTI HRASTA LUŽNJAKA (*Quercus robur* L.) S DUŠIKOM U INTERAKCIJI S METEOROLOŠKIM PRILIKAMA NA: FOTOSINTEZU, VEGETATIVNI RAST I RAZVOJ ŽIRA
- 13:30 **Anđelina Gavranović, Marija Gradečki-Poštenjak, Mladen Ivanković, Miran Lanščak, Zvonimir Vujnović, Saša Bogdan:** KVALITETA ŽIRA HRASTA LUŽNJAKA U HRVATSKOJ U RAZDOBLJU OD 2009. DO 2018. GODINE

- 13:40 **Sandra Crnković, Sonja Rukavina:** ŠUMSKI REPRODUKCIJSKI MATERIJAL NA PODRUČJU UPRAVE ŠUMA PODRUŽNICE BJELOVAR I UPRAVE ŠUMA PODRUŽNICE KOPRIVNICA U RAZDOBLJU 2009. – 2018. GODINE

Lunch (13:50-15:00)

Section C
II. part

Moderators: M. Đodan, S. Novak Agbaba

- 15:00 **Robert Licht, Zvonimir Vujnović, Mladen Ivanković, Marija Gradečki-Poštenjak, Miran Lanščak:** PROIZVODNJA SJEMENA HRASTA LUŽNJAKA (*Quercus robur* L.) U ŠUMSKIM SJEMENSKIM OBJEKTIMA U RAZDOBLJU 2009.-2018
- 15:10 **Heike Liesebach, Janine Wojacki:** UPDATING THE MINIMUM REQUIREMENTS FOR APPROVING SEED STANDS IN THE CATEGORY "SELECTED" – A CASE STUDY FOR DOUGLAS FIR IN GERMANY
- 15:20 **Milan Mataruga, Branislav Cvjetković, Vanja Daničić:** PROGRAM STANIŠTU PRILAGOĐENE PROIZVODNJE SADNOG MATERIJALA NA PRIMJERU REPUBLIKE SRPSKE (BOSNA I HERCEGOVINA)
- 15:30 **Sanja Novak Agbaba, Nevenka Čelepirović, Monika Karija Vlahović, Marija Gradečki-Poštenjak:** VARIJABILNOST NEKIH KVALITATIVNIH SVOJSTAVA I ZDRAVSTVENO STANJE BUKVICE U AREALU RASPROSTRANJENOSTI OBIČNE BUKVE U HRVATSKOJ

Section D

- 15:40 **Sanja Perić, Jasnica Medak, Ivan Pilaš, Tomislav Dubravac, Martina Đodan:** ZAKONODAVNI OKVIR I PROIZVODNJA ŠUMSKIH SADNICA U REPUBLICI HRVATSKOJ
- 15:50 **Marta Curman, Silvija Krajter Ostoić, Miran Lanščak, Mladen Ivanković:** ZAKONODAVNI OKVIR ZA OČUVANJE ŠUMSKOG REPRODUKCIJSKOG MATERIJALA U HRVATSKOJ
- 16:00 **Nevenka Čelepirović, Marija Gradečki-Poštenjak:** AKREDITACIJA I SUSTAV UPRAVLJANJA KVALITETOM ODJELA ZA LABORATORIJSKA ISPITIVANJA HRVATSKOG ŠUMARSKOG INSTITUTA PREMA HRN EN ISO/IEC 17025:2017
- 16:10 **Lucija Lovreškov, Tamara Jakovljević:** KONTROLA KVALITETE REZULTATA ISPITIVANJA – MEĐULABORATORIJSKE USPOREDBE

Moderators: M. Ivanković, M. Gradečki-Poštenjak, S. Bogdan

- 16:20 *Discussion*
- 16:50 *Closing of Conference*

Coffee Break (17:00 – 17:30)

- 17:30 **SEEFOR - 10 years of publishing**
Pozdravne riječi/Welcome Speeches
Sanja Perić, Director of Croatian Forest Research Institute
Dijana Vuletić, Editor-in-Chief
Presentation
Ivan Balenović, Executive Editor

Posters

- Anđelina Gavranović, Marija Gradečki-Poštenjak, Miran Lanščak, Saša Bogdan, Mladen Ivanković:** KLIJAVOST SJEMENA OBIČNE BUKVE (*Fagus sylvatica* L.) IZ RAZLIČITIH SJEMENSKIH SASTOJINA U HRVATSKOJ
- Igor Đukić, Zoran Novčić:** NURSERY PRODUCTION OF REPRODUCTIVE MATERIAL OF RIPARIAN FOREST TREE SPECIES
- Zvonimir Vujnović, Saša Bogdan, Miran Lanščak, Sanja Bogunović, Maša Nedanova, Anđelina Gavranović, Nevenka Čelepirović, Mladen Ivanković:** POČETNI RADOVI NA OPLEMENJIVANJU CRNE TOPOLE (*Populus nigra* L.) U HRVATSKOJ

Maša Nedanova, Zvonimir Vujnović, Miran Lanščak, Sanja Bogunović, Anđelina Gavranović, Mladen Ivanković: PRVI REZULTATI PLASTENIČKOG POKUSA PROVENIJENCIJA HRASTA LUŽNJAKA (*Quercus robur* L.)
Miran Lanščak, Nikola Zorić, Mladen Ognjenović, Zvonimir Vujnović: TEHNIKE PENJANJA NA STABLA I NJIHOVA UPOTREBA PRI SAKUPLJANJU ŠUMSKOG REPRODUKCIJSKOG MATERIJALA
Mladen Ivanković, Gregor Božić, Saša Bogdan: POTENCIJAL ZA SELEKCIJU BOŽIĆNIH DRVACA U POKUSU PROVENIJENCIJA OBIČNE JELE (*Abies alba* Mill.)

Wednesday, 4th December 2019, F A Delnice, NPŠO Zalesina

07:30 *Departure from Zagreb, Faculty of Forestry; University of Zagreb, Svetošimunska 25, Zagreb*

08:30 *Departure from Jastrebarsko, congress center Princess.*

a) *Field trip to visit Forest Seed object (FSO) of Common spruce in category "selected" and demonstration of cone collection (Forest Administration Delnice).*

b) *Visit to the Zalesina, Training and Forest Research Centre (NPŠO), Faculty of forestry, and introducing the participants to the scientific and professional activities carried out at the facility.*

19:00 *Arrival to Zagreb*

CONFERENCE OFFICIAL LANGUAGES

Croatian and English

VENUE

Congress Center Princess, Jastrebarsko, Croatia

REGISTRATION

Online Application form would be published on website:

<http://www.sumins.hr/sjemenarstvo60/?lang=en>

Closing date for registration is **30th November 2019**

FEES AND PAYMENTS

The conference fee can be paid in kuna (HRK) or euros (EUR) via bank transfer to the bank account of HRVATSKI ŠUMARSKI INSTITUT. Fee rates depend on the type of participant.

Registration Fee

after 20 th September 2019	
Registration Fee	100 €

VAT included

IMPORTANT: Deadline for payment is **30th November 2019**

BANK TRANSFER DETAILS

Recipient:

Title: Hrvatski šumarski institut

Address: Cvjetno naselje 41, 10450 Jastrebarsko, Croatia

VAT number: HR13579392023

Bank Account Details:

Name of the bank:

Zagrebačka banka d.d.

Bank address: Trg bana Josipa Jelačića 10, 10000 Zagreb, Croatia

IBAN: HR7923600001101252461

SWIFT: ZBAHR2X

Purpose of the Payment:

Seed60 conference and participant name.

Cancellation policy:

Registration cancellations will not merit a refund.

All participants will receive an invoice for their payments according to the information provided in the Registration form.

ACCOMMODATION

The venue of the Conference is Hotel Princess**** Jastrebarsko, Croatia.
Special discount is arranged at the hotel for the accommodation of the participants.
Participants are expected to make their own travel and accommodation arrangements.

<u>Hotel Princess</u>	<u>Recommendations:</u> <u>Panorama Zagreb hotel</u>	<u>Hotel International</u>
Cvetković 85B 10450 Jastrebarsko Hrvatska +385 1 4653 400	Trg Krešimira Čosića 9 10000 Zagreb Hrvatska Tel : +385 1 3658 333 Fax : +385 1 3092 657 E-mail :	Miramarska 24 10 000 Zagreb Hrvatska Tel: +385 1 6108 800 Fax: +385 1 6108 700 E-mail:
Email: recepcija@princess.hr	hotel@panorama-zagreb.com	hotel@hotel-international.hr
Web: https://princess.hr/	Web: https://www.panorama-zagreb.com/	Web: http://www.hotel-international.hr

* Please contact the hotel for reservation in this period as soon as possible, because of Christmas Market in Zagreb (Advent Zagreb)

For more information on accommodation in Zagreb please visit www.booking.com

LOCATION INFO

Jastrebarsko is located in northwestern Croatia, 20 kilometers southwest of the Croatian capital Zagreb. It occupies an area of 229 square kilometers, and this area is made up of 59 villages. You can arrive to Jastrebarsko in several ways:

By road traffic

You can come to Jastrebarsko by car, in two ways: by "old Karlovac road" and by highway A1 Zagreb-Rijeka . If you go by highway, you need to go to exit number two called Jastrebarsko which is on 20-th kilometer of highway from Zagreb. If you travel the "old Karlovac road" from Zagreb, you must go through the place called Lučko , and then you have to go through a lot other places: Gornji Stupnik, Rakov Potok, Pavučnjak, Klinča Sela, Donji Desinec and then you're in Jastrebarsko.

By bus

You can go from Zagreb to Jastrebarsko, only by buses of Samoborček d.o.o., from two places: Savski most (drives on Weekdays, Saturdays, Sundays and holidays) and Autobusni kolodvor Zagreb (drives only on Weekdays).

By train

If you travel from the main train station Zagreb to Jastrebarsko, you need to come out from the train, on the 7th station in order. You can see train timetables on the link of the Croatian Railways which is located in the Useful links section.

By plane

Main airport in Croatia is Airport Zagreb, from which you have only 40-kilometers to the Jastrebarsko. You can get from Airport Zagreb to Jastrebarsko, by taxi, bus or with a combination of vehicles.

Jastrebarsko with rich cultural and historical heritage will surely welcome all participants of the conference with warm impressions and pleasant memories.

CURRENCY

The official currency in Croatia is the kuna (HRK). Foreign currency can be exchanged in banks, exchange offices, post offices and in the majority of tourist information offices and hotel.

ADDITIONAL INFORMATION

Information about Conference, venue and field trip are available on Conference website: www.sumins.hr

CONTACT PERSON

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Organising Committee *President:* Marija Gradečki-Poštenjak, PhD, *Vice President:* Mladen Ivanković, PhD, Members Prof. dr. sc. Josip Margaletić, Prof. dr. sc. Željko Škvorc, Dr. sc. Nevenka Čelepurović, Dr. sc. Martina Đodan, Dr. sc. Sanja Novak Agbaba, Dr. sc. Tamara Jakovljević, Dr. sc. Ivan Balenović, Robert Licht, mag. ing. silv., Ivica Čehulić, dipl. ing. šum., Anđelina Gavranović, mag. ing. silv., Maša Nedanova, mag. ing. silv., Sanja Bogunović, mag. ing. silv., Miran Lanščak, dipl. ing. šum., Zvonimir Vujnović, mag. ing. silv. **Scientific odbor** Santiago C. González-Martínez, Czesław Koziol, Prof. dr. Heinz Rennenberg, Dr. Aikaterini Dounavi, Prof. dr. sc. Mirko Leisebach, Prof. dr. sc. Hojka Kraigher, Prof. dr. sc. Dalibor Ballian, Prof. dr. sc. Saša Orlović, Prof. dr. sc. Milan Oršanić, Prof. dr. sc. Davorin Kajba, Prof. dr. sc. Saša Bogdan, Dr. sc. Ivan Pilaš, Dr. sc. Tomislav Dubravac **Committee of Honour** Doc. dr. sc. Sanja Perić, Dr. sc. Karmelo Poštenjak, Prof. dr. sc. Tibor Pentek, Akademik Slavko Matić, prof. emeritus, Akademik Igor Anić, Prof. dr. sc. Blaženka Divjak, Mr. sc. Marija Vučković, Krunoslav Jakupčić, dipl. ing. šum., Oliver Vlainić, dipl. ing. šum., Silvija Zec, dipl. ing. šum.